

# A Novel Technology for Simultaneous TOC Reduction and Biofouling Prevention, Phase II

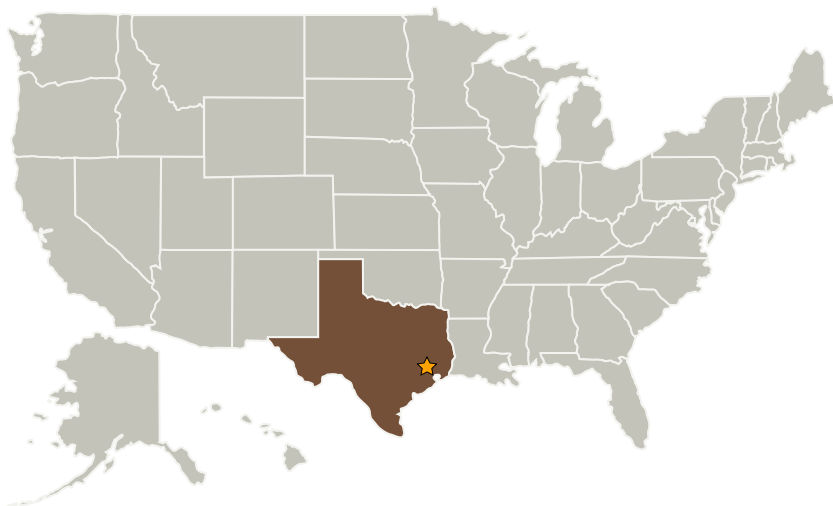
Completed Technology Project (2006 - 2008)



## Project Introduction

Recycling of water using biological processes is a primary goal of NASA's advanced life support programs. This proposal concerns a technology to simultaneously reduce the microbial count (MC) and total organic carbon (TOC) content of biological water processor (BWP) effluent. This technology is based on an advanced oxidation process using an on-demand oxidizer generator, which does not require consumable chemicals. Phase I feasibility studies successfully demonstrated the efficacy of the process for the reduction of both TOC and MC of the BWP processed water. Independent evaluation of the technology at a well known technological university successfully demonstrated the efficacy of the process for minimizing the RO membrane fouling. The residual disinfectant and reduced TOC in the treated effluent minimize fouling the RO membrane and water lines. In addition, reduced TOC lowers the load on equipment downstream to the BWP, enabling a reduction in the equivalent system mass. In the Phase II project, a prototype will be fabricated and evaluated for its ability to reduce TOC, MC and extend RO membrane life in a technological university having a small scale water reclamation system similar to that at NASA-JSC. The GEN I unit developed will be delivered to NASA-JSC.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Johnson Space Center (JSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Lynntech, Inc.	Supporting Organization	Industry	College Station, Texas

## Primary U.S. Work Locations

Texas

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

## Technology Areas

### Primary:

- TX07 Exploration Destination Systems
  - └ TX07.2 Mission Infrastructure, Sustainability, and Supportability
    - └ TX07.2.1 Logistics Management